Science and the International Regulation of Marine Pollution

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Introduction

The definition of marine pollution found in Article 1 of the United Nations Convention on the Law of the Sea[1] (LOSC) originated in the work of the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP).[2] It is, in that respect, firmly rooted in received scientific understandings of pollution. One might anticipate then that scientific understanding would underpin the development of the law. For science to play such a key role, however, the decision-making processes must allow for policies or laws to be revised in light of new scientific information. One might anticipate then that the decision-making processes used will be rooted in adaptive management.[3] Adaptive management involves consciously following an iterative approach to regulation. The approach is based upon an acknowledgement that information within the system is imperfect and that decisions must be made on the basis of that imperfect information. In adaptive management processes a range of possible responses to a given issue are reviewed and a choice is made as to which response to test in one or more pilot projects. The pilot projects are monitored and reviewed after a period of time to determine whether the law or policy reflected in them should be developed in a particular direction or whether further adaptation in policy or regulatory response is required. In the environmental context reviews are based upon *inter alia* data on the state of the environment and changes to it as a result of the implementation of policies and as a result of the effects of other drivers. As such, scientific information sits at the heart of the process, though other information such as on economic or social pressures may also be relevant.

* With thanks to Robin Churchill and to the editors for their insightful comments on an earlier draft.

[1] United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397 (LOSC).

[2] Though GESAMP itself drew on the work of other organisations in arriving at it. See Joint IMCO/FAO/UNESCO/WMO Group of Experts on the Scientific Aspects of Marine Pollution 'Report of the First Session' (GESAMP London 1969) GESAMP I/11 1969.

[3] For a discussion of types of adaptive management see Bradley C Karkkainen, 'Adaptive Ecosystem Management and Regulatory Penalty Defaults: Toward a Bounded Pragmatism' (2002-2003) 87 Minnesota Law Review 57; Bradley C. Karkkainen, 'Toward Ecologically Sustainable Democracy?', in A. Fung and E.O. Wright (eds.), *Deepening Democracy: Institutional Innovations in Empowered Participatory Governance* (Verso 2003); K.N. Lee and J. Lawrence , 'Adaptive Management: Learning from the Columbia River Basin Fish and Wildlife Program' (1986) 16 Environmental Law 431; J.B. Ruhl, 'Taking Adaptive Management Seriously: A Case Study of the Endangered Species Act' (2004) 52 University of Kansas Law Review 1249, Carl Walters and C.S. Holling, 'Large-Scale Management Experiments and Learning by Doing' (1990) 71 Ecology 2060.

This chapter considers the approaches taken by international regimes addressing marine pollution, drawing out similarities and differences in approach across time and different sources of pollution, the degree to which they follow an adaptive management approach and the role of science in particular within decision-making. It begins with an overview of the historical development of the law, though aspects of that development are returned to throughout the chapter to illustrate the factors that have influenced the shape of the current regime. The section on historical development is followed by a discussion of the current regime which is split into a discussion of general obligations and certain source specific obligations. The final section contains conclusions and a discussion of current and future issues.